Expanded Site Inspection
Site Specific Implementation Plan
for
(former) DeBoer Landfill
(currently Palos Hills Municipal Golf Course)

USEPA ID No. ILD 062474598

BVWST Project No. 71280.117

June 28, 1993

For B&V Waste Science and Technology Corp.

Prepared by: _____ Date: 6/28/93

Reviewed by: _____ Date: 6-28-93

Approved by: _____ Date: June 28, 1993

For U.S. Environmental Protection Agency, Region V

Approved by: _____ Date: 7/12/93 per requested modifications
Work Assignment Manager (WAM)

For Illinois Environmental Protection Agency

Approved by: _____ Date: _____
Department of Land Pollution Control (DLPC)

ES start 401 Jan 93

Contents

Contents (Continued)

Tables

Figures

1.0 Introduction

1.1 Confidentiality

THIS DOCUMENT IS CONFIDENTIAL. It contains predecisional information that is not to be released without the approval of the U.S. Environmental Protection Agency (USEPA).

1.2 Preparation

The Alternate Remedial Contracting Strategy (ARCS) V contractor, B&V Waste Science and Technology Corp. (BVWST), prepared this site specific implementation plan (SSIP) for the USEPA under ARCS contract 68-W8-0064.

1.3 Objective

An SSIP defines the expanded site inspection (ESI) activities for a particular site. It includes a description of the known/alleged waste characteristics used at the site, sample strategy, site safety plan, major investigation milestones and schedule, and the level of effort needed to complete the ESI.

The objective of the ESI is to collect all data necessary to prepare a Hazard Ranking System (HRS) scoring package adequate for National Priorities List documentation. During an ESI, site-related data is gathered through the following activities:

- Investigating remaining hypotheses or assumptions for pathways of concern not adequately tested during the screening site inspection (SSI).
- Sampling to attribute hazardous substances to site operations.
- Sampling to establish representative background levels.
- Collecting missing HRS data for pathways of concern.

Special ESI field activities are required when routine SSI environmental sampling fails to provide the information needed for HRS documentation requirements. These activities provide data to refine and document the site HRS score. Special ESI activities may include monitoring well installation, test borings, air sampling, geophysical studies, drum or tank sampling, fish tissue sampling, and complex background sampling studies.

ESI sampling is designed to delineate observed releases, observed contamination, and levels of contamination as required by the HRS. In addition,

appropriate quality assurance/quality control (QA/QC) and background samples are collected to verify site releases.

The ESI differs from the SSI by emphasizing the collection of all missing non-sampling information for pathways of concern. This new information may be used to support previous documentation or references, fulfill remaining HRS data requirements, or identify other sources of contamination near the site.

1.4 Quality Assurance/Quality Control

The Quality Assurance Project Plan for Region V Superfund Site Assessment Program, dated September 27, 1991, documents QA/QC protocol for site inspection activities unless otherwise stated.

2.0 Site History

This section presents information pertaining to site history, including site operations, storage/disposal methods, areas of concern, and current status.

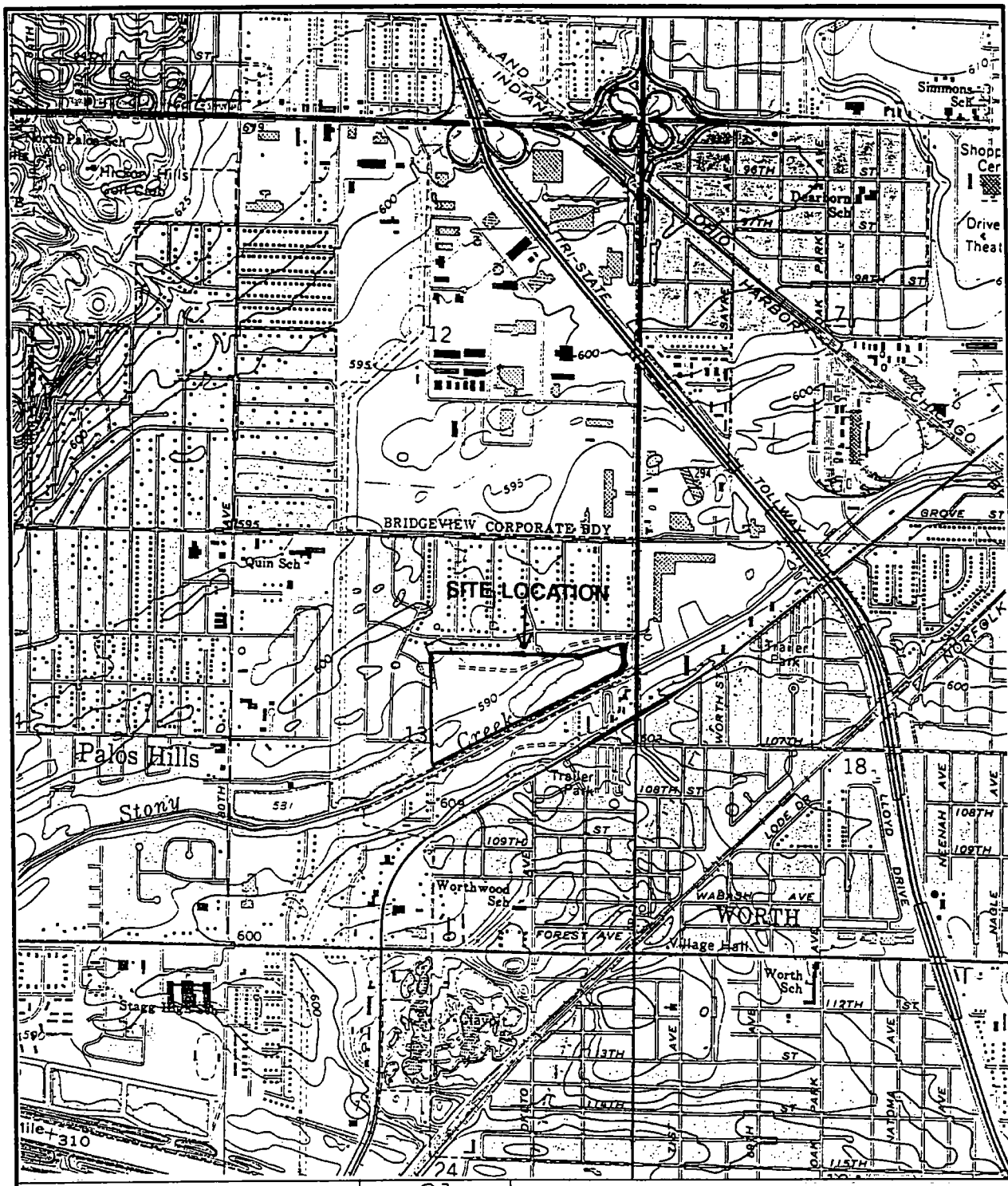
2.1 Site Operations

The former DeBoer Landfill occupies approximately 35 acres southwest of 105th Street and Harlem Avenue in Palos Hills, Cook County, Illinois (T37N, R12E, S13). Figure 1 shows the site location. The site is bounded by 105th Street on the north, Harlem Avenue on the east, Stony Creek on the south, and residences on the west (Figure 2). A small portion of the site is occupied by businesses along Harlem Avenue; the remainder is now the Palos Hills Municipal Golf Course. Land use in the surrounding area is mainly residential, with some commercial use.

Landfilling at the site began in 1955, under the ownership of DeBoer Brothers Inc. Wastes accepted at the site included paper, rags, tires, construction debris, incinerator ash, and general refuse. Resident complaints indicated drums have been landfilled onsite. No record of wastes accepted at the site has been found. DeBoer Brothers Inc. was merged into Waste Management of Illinois Inc. in October 1972. Operations ceased at the site in February 1973. No record of closure activities was found. In approximately 1977, James J. DeBoer donated the site to the City of Palos Hills. The site was developed into the Palos Hills Municipal Golf Course, which was completed in 1989.

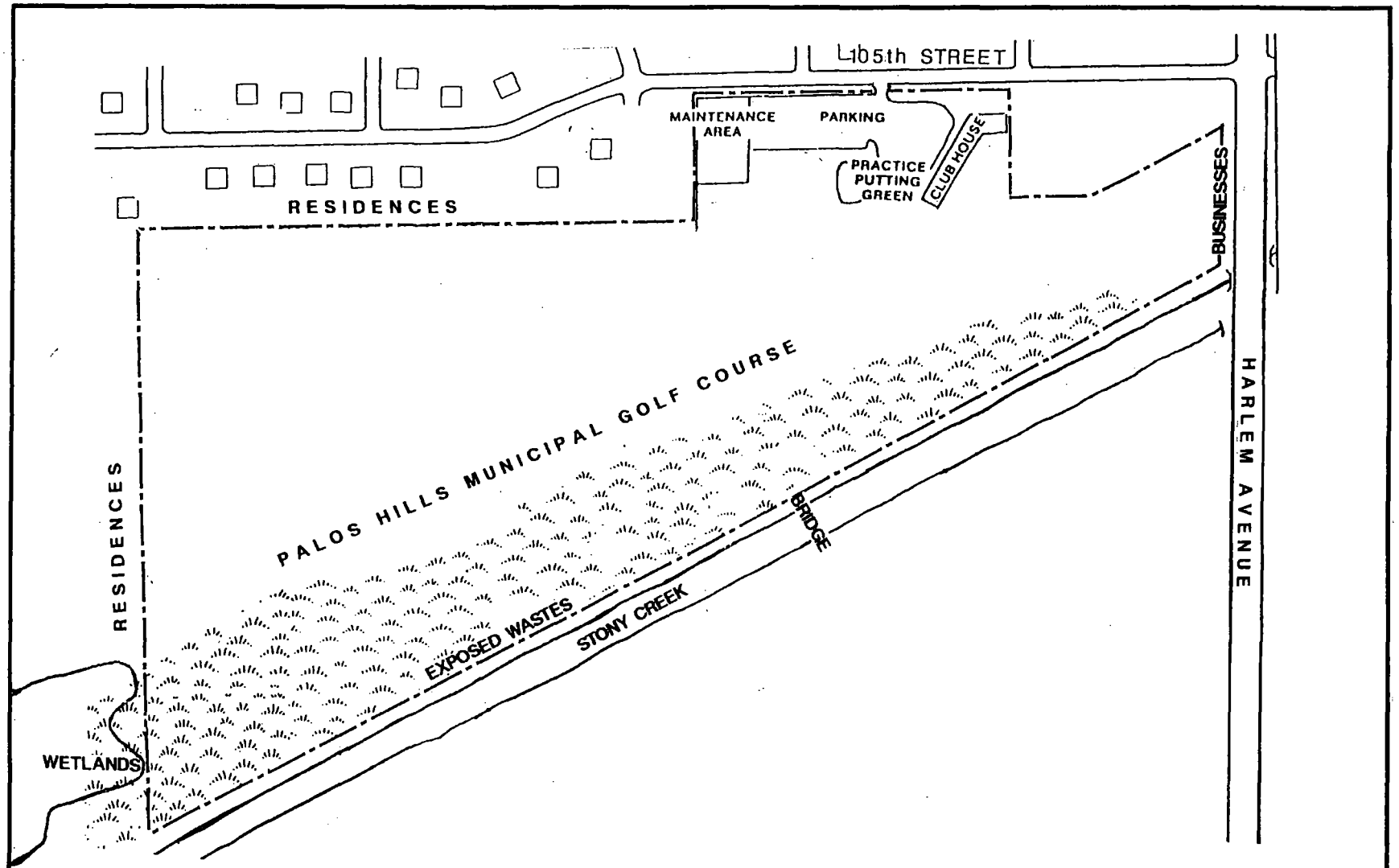
2.2 Storage/Disposal Methods

Wastes accepted at the site include paper, rags, tires, construction debris, incinerator ash, and general refuse. Resident complaints indicated drums have been landfilled onsite. No record of wastes accepted at the site has been found. A soil and foundation engineering report shows waste fill to be between 10 and 32 feet thick. In 1987, during construction of the golf course, construction debris, tree fragments, and excavated soils from offsite were dumped at the facility. The city of Palos Hills permitted this to acquire fill material at low cost.



Source: U.S.G.S. 1980	N	Figure 1 Site Location Map
Scale: 1:24,000		Deboer Landfill Palos Hills, Illinois

B&V Waste Science and Technology Corp.



Source: Modified from E&E, 1987	N	Figure 2 Site Layout
Scale: Not to Scale		DeBoer Landfill Palos Hills, Illinois

B&V Waste Science and Technology Corp.

2.3 Areas of Concern

Areas of concern as potential hazards to the environment and population are landfilled and exposed wastes.

Landfilled wastes may be leaching hazardous substances to Stony Creek and may pose a threat to adjacent residents and businesses. Exposed wastes near Stony Creek may enter the creek through runoff or flooding, and are accessible because the site is not completely fenced.

2.4 Current Status

The DeBoer Landfill became inactive in 1973. The site is occupied by the Palos Hills Municipal Golf Course and businesses on Harlem Avenue.

3.0 Reconnaissance Findings and Observations

Two BVWST personnel conducted the site reconnaissance and interview on April 8, 1993. The interview began in the clubhouse of the Palos Hills Municipal Golf Course with Mr. Jay Druhan, Superintendent of Grounds for the course. Mr. Howard Chinn and Mr. Joseph Annunzio of the Office of the Attorney General of the State of Illinois also attended. Mr. Chinn is Chief Engineer and Mr. Annunzio is an attorney for the Environmental Control Division. They have been involved with the site in response to past resident complaints.

The site reconnaissance began at the clubhouse in the northeastern portion of the site and proceeded along the perimeter, in a counterclockwise direction. Rainy conditions during the reconnaissance made active runoff routes evident. Drainage routes were noted and photographed. The site is at least ten feet above the grade of residences and Stony Creek, causing runoff to drain to the site perimeter. Ditches along the northern and western boundaries of the site drain to a sewer. Mr. Druhan did not know whether this sewer tied into the sanitary sewer or discharged to surface water bodies. Drain tiles and natural gullies channel runoff from the southern portion of the site to Stony Creek. Pleasant Lake is located just outside the southwestern boundary of the site. No runoff from the site was observed entering the lake. Water is pumped from the lake to irrigate the golf course.

After touring the site, the southern portion of the site bounded by Stony Creek was closely inspected. The majority of this land is wooded. Exposed wastes were observed approximately fifty feet from the creek at the southwestern portion of the site. Wastes observed include rusted drums, paper, plastic, rubber, and construction debris. The bluish-colored contents of one rusted drum were visible. The material appeared to consist of solid crystalline particles.

A 9-hole golf course occupies the majority of the site. Grass and sand traps cover most of this area. A few trees occupy a small swampy area in the northern portion of the site. Vegetation indicates that this area holds water for a significant period of time. No additional exposed wastes or other evidence of release was noted during the golf course inspection.

After the golf course tour, BVWST proceeded to A&H Rentals, a business located on Harlem Avenue in the eastern portion of the site. In April 1992, Illinois Environmental Protection Agency (IEPA) sampled a black tar-like substance oozing from the parking lot south of the A&H building. Volatile organic constituents and

heavy metals were found in these samples, but full TAL and TCL analyses were not performed. Mr. Larry Conner of A&H was interviewed. The sampled area had been covered with a piece of plywood. A solid black tar-like substance was visible after the plywood was removed. Mr. Conner claimed that the substance oozes during warm temperatures.

After leaving the site, upstream segments of Stony Creek were observed. Land use, approximately one-half mile upstream, generally appeared to be commercial and residential.

4.0 Justification for an ESI

This section presents information supporting the need to conduct an ESI, including the threat posed to specific pathways and the population/environments potentially affected.

4.1 Supporting Information

Supporting information was gathered from USEPA and IEPA files. The former DeBoer Landfill became inactive in 1973, but closure activities are unclear. No record of types or quantities of waste landfilled at the site have been found.

Sampling of surficial soil has been performed by a USEPA field investigation team (FIT) contractor in 1987. Analyses of these samples indicate the presence of hazardous substances at concentrations significantly above the background levels established during the sampling.

IEPA sampled surface water and exposed waste, in 1992, in response to resident complaints. Water was collected from a drainage pipe in the northern portion of the site; an oozing tar-like substance was collected from a parking lot in the eastern portion of the site. Analyses of these samples indicate the presence of heavy metals and phenol, but no background levels were established during this sampling visit. The samples received volatile organic and TCLP analyses only.

4.2 Pathways Threatened

Pathways potentially threatened are sediment, surface water, soil, and groundwater. The sediment and surface water pathways are potentially threatened because landfilled areas and exposed wastes are near Stony Creek and Pleasant Lake wetlands. Hazardous substances potentially present in the landfill may migrate to sediment and surface water by surfacial runoff, drainage culverts, and leachate.

Past soil sampling by the USEPA FIT contractor indicated that hazardous substances are present in onsite soils. The limits of the soil contamination and its proximity to residents have not been defined.

The groundwater pathway may be affected because landfilled wastes may be releasing hazardous substances to the shallow glacial drift aquifer. No groundwater sampling data is available for the site.

4.3 Populations/Environments Potentially Affected

The potential threat that the site poses to surface water is of primary concern. Stony Creek is adjacent to the southern boundary of the site; Pleasant Lake is just outside the southwestern boundary of the site. These surface water bodies may be used for fishing and recreational use.

The site poses little threat to local drinking water supplies because most residents receive treated water from Lake Michigan. Although there is potential for contaminated groundwater in the glacial drift, no active drinking water wells screened in the drift were found near the site. Within four miles of the site, the Silurian Dolomite aquifer supplies approximately 7,000 private well users. However, these users are unlikely to be affected by the site. Most residents supplied by the bedrock aquifer are farther than one mile from the site, and low-permeability layers are present between potential contaminants and the bedrock aquifer.

Surficial soil samples collected in 1987 by the FIT contractor contained hazardous substances. The soil exposure pathway is of concern because residents are located within 200 feet of the site.

5.0 Proposed Sampling Plan

Unless otherwise noted, all sample analyses will be for the Target Compound List (TCL) and Target Analyte List (TAL) in the Quality Assurance Project Plan of September 27, 1991. Sampling locations were chosen to represent either background conditions or areas most likely to be affected. Sampling locations are shown on Figure 3 and described in Table 1.

5.1 Soil

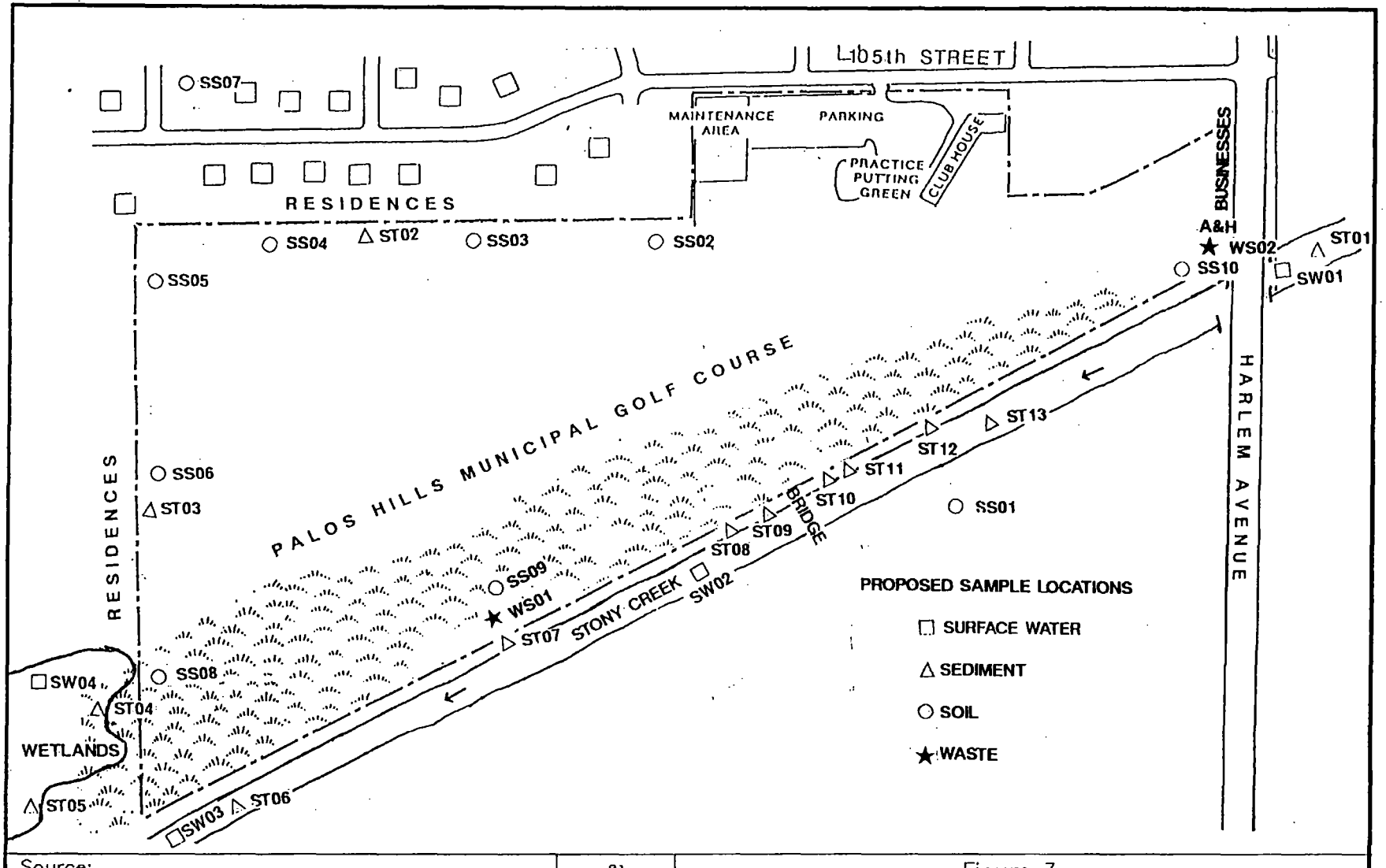
A total of ten soil samples, from depths of two feet or less, are proposed. Eight soil samples are proposed to assess the potential threat to residents within 200 feet of the site. Residences are located along the northern and western site boundaries. Six soil samples will be collected onsite within 200 feet of residences bordering the site. The 1987 FIT sampling found hazardous substances in a soil sample collected about 200 feet north of the site. Two offsite background samples are proposed to aid in the attribution of site contaminants. One soil sample will be collected near each of the two waste samples described in Section 5.4, to aid in attributing release of these wastes to onsite soils.

5.2 Surface Water

A total of four surface water samples are proposed. Three surface water samples will be collected from Stony Creek, consisting of one sample from each of three locations: upstream, adjacent to, and downstream of the site. One surface water sample will be collected from Pleasant Lake, located just southwest of the site.

5.3 Sediment

A total of thirteen sediment samples are proposed. One sample will be collected from the ditch at the northern site perimeter and one from the ditch at the western site perimeter. The sewer that receives the outfall from these ditches may discharge to surface water. If further information indicates the sewer connects to a sanitary sewer, the samples from these two ditches may be eliminated. Six sediment samples will be collected from runoff channels that were observed to discharge to Stony Creek. These six samples are expected to assess the threat of wastes leaching into Stony Creek. Two sediment samples will be collected from the wetland area near Pleasant Lake, which is located just outside the southwestern site border. Three



Source: Modified from E&E, 1987	N	Figure 3 Proposed Sampling Locations
Scale: Not to Scale		Deboer Landfill Palos Hills, Illinois

B&V Waste Science and Technology Corp.

Table 1
Proposed Location of Investigative Samples

Media	Sample	Location/Objective
Surface Water	DL-SW01-001	In Stony Creek, upstream of site, to establish background contaminant levels.
	DL-SW02-001	In Stony Creek, adjacent to site, to determine presence/absence of hazardous substances.
	DL-SW02-101	Duplicate of DL-SW02-001.
	DL-SW03-001	In Stony Creek, just downstream of site, to determine presence/absence of hazardous substances.
	DL-SW04-001	In wetlands (Pleasant Lake) southwest of site, to determine presence/absence of hazardous substances.
Sediment	DL-ST01-001	In Stony Creek, upstream of site, to establish background contaminant levels.
	DL-ST02-001	In ditch that drains the northern portion of the site, to determine presence/absence of hazardous substances.
	DL-ST03-001	In ditch that drains the western portion of the site, to determine presence/absence of hazardous substances.
	DL-ST04-001	In wetlands near southwestern portion of the site, to determine presence/absence of hazardous substances.
	DL-ST05-001	In wetlands, further west and south of ST04, to determine presence/absence of hazardous substances.
	DL-ST06-001	In Stony Creek, near southwestern portion of the site, to determine presence/absence of hazardous substances.
	DL-ST07-001	Near Stony Creek, downgradient of exposed wastes, to determine presence/absence of hazardous substances.
	DL-ST07-101	Duplicate of DL-ST07-001.

Table 1 (Continued)		
Media	Sample	Location/Objective
Sediment (Continued)	DL-ST08-001	Runoff pathway into Stony Creek, south and west of 8th tee of golf course, to determine presence/absence of hazardous substances.
	DL-ST09-001	Runoff pathway into Stony Creek, south of 8th tee, just west of bridge, to determine presence/absence of hazardous substances.
	DL-ST10-001	Runoff pathway into Stony Creek, about 200 feet east of 9th tee, to determine presence/ absence of hazardous substances.
	DL-ST11-001	Runoff pathway into Stony Creek, about fifty feet east of ST10, to determine presence/ absence of hazardous substances.
	DL-ST12-001	Runoff pathway into Stony Creek, about 100 feet east of village of Worth outfall, to determine presence/absence of hazardous substances.
	DL-ST13-001	In Stony Creek, downstream of the village of Worth outfall, to determine presence/absence of hazardous substances.
Soil	DL-SS01-001	In grassy area southeast of the bridge across Stony Creek, to establish background contaminant levels.
	DL-SS02-001	Near residences southwest of the maintenance shed at the northern portion of the site, to determine presence/absence of hazardous substances.
	DL-SS03-001	Near residences at northern portion of the site, about 500 feet west of SS02, to determine presence/absence of hazardous substances.
	DL-SS04-001	Near residences, about 500 feet west of SS03, to determine presence/absence of hazardous substances.

Table 1 (Continued)		
Media	Sample	Location/Objective
Soil (Continued)	DL-SS05-001	Near residences, just south of northwestern corner of the site, to determine presence/absence of hazardous substances.
	DL-SS06-001	Near residences, about 500 feet south of SS05, to determine presence/absence of hazardous substances.
	DL-SS07-001	Offsite, near residences north of the site, to determine presence/absence of hazardous substances.
	DL-SS08-001	Near residences, about 500 feet south of SS06, to determine presence/absence of hazardous substances.
	DL-SS08-101	Duplicate of DL-SS08-001.
	DL-SS09-001	Near WS01, to determine presence/absence of hazardous substances.
	DL-SS10-001	Near WS02, to determine presence/absence of hazardous substances.
Waste Sources	DL-WS01-001	Near Stony Creek, from a broken drum at the southern portion of the site, to determine presence/absence of hazardous substances.
	DL-WS01-101	Duplicate of DL-WS01-001.
	DL-WS02-001	Parking lot of A&H Rentals, adjacent to southern portion of the building, to determine presence/absence of hazardous substances.
	DL-WS02-101	Duplicate of DL-WS02-001.

Note: Additional QA samples will be collected based on the QAPjP for Region V Superfund Site Assessment Program, dated September 27, 1991.

sediment samples will be collected from Stony Creek: one upstream of the site and two adjacent to the site.

5.4 Groundwater

No groundwater samples are proposed because the groundwater pathway lacks the potential to significantly affect HRS scoring. The site poses little threat to local drinking water supplies because most nearby residents receive treated water from Lake Michigan. Although potential exists for contaminated groundwater in the glacial drift, no active drinking water wells screened in the drift were found near the site. Within four miles of the site, the Silurian Dolomite aquifer supplies approximately 7,000 private well users. However, these users are unlikely to be affected by the site. Most residents supplied by the bedrock aquifer are further than one mile from the site, and low-permeability layers are present between potential contaminants and the bedrock aquifer.

5.5 Waste Sources

Two investigative waste source samples are proposed to characterize exposed wastes observed onsite. Characterization of these wastes will determine appropriate response which may include removal action, volume studies, or other further investigative activities. One of the samples will be collected from a broken drum in the southern portion of the site, near Stony Creek. During the reconnaissance, this drum was observed to contain a bluish substance. One sample of a black tar-like substance will be collected from the parking lot of A&H Rentals, in the eastern portion of the site. The owner of A&H Rentals indicated that this substance oozes during the summer months; the material appeared to be solid during the April reconnaissance. IEPA sampled this substance in 1992, but analyses were performed for volatile organic and TCLP analyses only.

5.6 Management of Investigative-Derived Wastes

The types of ID Wastes anticipated to be generated at this site are:

- Decontamination fluids,
- Disposable sampling equipment, and
- Disposable personal protective equipment (PPE).

Generally, soil, spoils, water, fluids, and sediments generated during a site assessment are suitable for disposal onsite. Sampling and decontamination activities

should not increase hazards associated with the site. Excess amounts of sampled environmental media (surface water and soil) are to be returned to the location at which they were collected. This will eliminate the risk of transferring contaminants from one location on site to an area less contaminated or contaminant-free.

Field decontamination of sampling equipment will consist of washing with Alconox or Liquinox (both products are detergents) and tap water followed by rinsing with deionized water. The small quantities of detergent and water to be used in the decontamination process during sampling activities at this site should be disposed of at or near sampling locations, since potential contaminant concentrations will not be increased and no new hazardous constituents will be introduced. Prior samplings indicate that environmental media at the DeBoer site do not exhibit RCRA hazardous waste characteristics of ignitability, corrosivity, reactivity, or toxicity.

Equipment used in sampling of the tar-like waste may require a stronger decontamination solution than Alconox and water. If necessary, the equipment will be washed with hexane (usual decontamination solvent) followed by a strong solution of trisodium phosphate (TSP) before the normal decontamination procedures. Disposable spoons or trowels will be used to collect waste samples of both the tar-like waste and the open drum waste.

Use of solvents for decontamination will be avoided, if possible. Disposable PPE and disposable equipment will be double-bagged in plastic trash bags and disposed of as general refuse. Tyvek coveralls, rubber boot covers, rubber gloves, and duct tape are the disposable PPE which will be used for this site. If used, the solvent-related solution will be containerized and labeled for offsite disposal at an approved hazardous waste facility.

In unanticipated situations where the total quantity of ID waste exceeds 100 kg (200 pounds) and the ID waste is known or suspected to be RCRA hazardous, the BVWST project manager and the USEPA project work assignment manager will be contacted to coordinate proper handling and disposal procedures.

6.0 Work Summary

Field activities will follow procedures defined in the Quality Assurance Project Plan for Region V Superfund Site Assessment Program, dated September 27, 1991. The field investigation will include the following activities:

1. Collect samples to delineate potentially affected migration pathways. Samples will include sediment, soil, groundwater, and waste sources.
2. Photograph sampling locations.
3. Screen samples with a photoionization detector or flame ionization detector to determine the presence of volatile organic vapors.
4. Record field activities and field data in a logbook.
5. Dispose of investigative derived waste.

During the ESI, the ARCS contractor will follow the health and safety protocol detailed in the site health and safety plan. The ARCS contractor anticipates workers will be properly protected during these activities using these levels of personal protective equipment:

Activity *	Anticipated Level
1	D
2	D
3	D
4	D
5	D

* When performing the indicated activity, the field team will be prepared to advance to the next level of personal protection above that listed.

7.0 Estimate of LOE Hours

1. Estimated level of effort (LOE) for work increments (excluding project management):

Activity	LOE
a. Gather Background Data*	135
b. Prepare Plans/Site Reconnaissance**	145
c. Field Work	130
d. Report Preparation***	250
Total	660

* Includes rough PREscore package.
** Includes Special Analytical Services (SAS) requirements for waste sampling.
*** Includes data validation and additional HRS PREscore activities for report preparation.

2. Number of field team members:

   Three or four persons.

3. Number of days for field work (actual onsite activities):

   Approximately two days are required for soil, surface water, sediment, and exposed waste sampling.

8.0 Projected Schedule of Milestones

Milestone	Begin	Complete
Pre-Field Work	February 1993	May 1993
Travel/Field Work	July 1993	July 1993
Analyses and Validation	August 1993	September 1993
Report Preparation	August 1993	October 1993

References

B&V Waste Science and Technology Corp. (BVWST), 1993. Phone calls to water department of Justice, Bridgeview, Burbank, Hickory Hills, Palos Hills, Palos Heights, Palos Park, Worth, Oak Lawn, Orland Park, and Alsip.

BVWST, 1993. Prescore Hazard Ranking System scoring performed for the DeBoer site.

C.C. Johnson & Malhotra, P.C., 1987. Field investigation team (FIT) inspection report. July 16.

Illinois Environmental Protection Agency (IEPA), 1992. Sampling performed by Charles Gruntman, April 8.

IEPA, 1988. Internal memo to Monte Nienkerk from Mike Orloff. July 19.

Illinois State Water Survey, 1993. Computer database printouts and well logs from the 4-mile target radius surrounding the site.

U.S. Geological Survey, 1992. Topographical maps for Palos Park, Blue Island, Berwyn, and Sag Bridge; Illinois.

U.S. Department of the Interior, 1984. Fish and Wildlife Service, National Wetlands Inventory Topographic quadrangle Maps for Palos Park, Blue Island, Sag Bridge, and Berwyn.